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Characterization of particulate organic matter in the Lena River delta and adjacent nearshore zone, NE Siberia – Part 2: Lignin-derived phenol compositions

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Table S1. Additional total suspended matter (TSM) samples, which were included into the mean TSM calculation, but not analyzed for CuO oxidation products. Latitude and longitude are given in decimal degrees (dec). The TSM samples were taken from the surface water layer with a sampling depth of ca. 0.5m.

Sample code	Sample & site description	Date of sampling	Latitude N [dec]	Longitude E [dec]
Lena River total suspended matter				
1	Olenyokskaya Channel	14-Aug-2009	72.4771	125.2856
2	Olenyokskaya Channel	14-Aug-2009	72.3598	125.6728
3	Lena River main channel	16-Aug-2009	72.1526	126.9159
5	Sardakhskaya/Trofimovskaya Channel	17-Aug-2009	72.5825	127.1891
6	Sardakhskaya Channel	17-Aug-2009	72.7002	127.4929
7	Sardakhskaya/Trofimovskaya Channel	17-Aug-2009	72.6268	127.3860
8	near Kurungnakh Island	18-Aug-2009	72.2904	126.0909
9	Lena River main channel	19-Aug-2009	72.2987	126.7080
12	Bykovskaya Channel	20-Aug-2009	72.4140	126.9124
15	Lena River Bykovskaya Channel	21-Aug-2009	72.0354	128.0974
18	NE of Muostakh Island	22-Aug-2009	71.6761	130.1728
20	W of Muostakh Island	23-Aug-2009	71.6088	129.9393
21	close to Muostakh Island shoreline	23-Aug-2009	71.5750	129.8200
22	off Samoylov Island	30-July-2010	72.3650	126.4628
23	off Kurungnakh Island	30-July-2010	72.3392	126.3115
24	Trofimovskaya Channel	31-July-2010	72.5343	126.8794
33	Bykovskaya Channel	4-Aug-2010	72.3604	127.6765
34	off Bykovsky Peninsula	4-Aug-2010	71.7015	129.7523

Table S2. Total suspended matter concentration of individual TSM samples from 2009 and 2010. Not determined denoted by n.d.

Sample code	TSM [mg/L]
Lena Delta TSM Aug 2009	
1	3.10
2	14.17
3	6.33
4	29.01
5	11.65
6	14.09
7	7.45
8	8.82
9	66.39
10	38.97
11	52.51
12	20.20
13	29.26
14	33.32
15	15.72
16	19.56
17	174.92
18	6.72
19	*n.d.*
20	10.52
21	7.33
Lena Delta TSM July/Aug 2010	
22	14.89
23	16.26
24	11.83
25	32.23
26	28.94
27	25.28
28	22.56
29	26.57
30	25.81
31	31.11
32	19.88
33	19.07

34	3.52
35	9.30
36	10.54

Table S3. Organic carbon (OC), total nitrogen (TN), and atomic OC to TN ratio (OC:TN) for individual soil samples of the Lena Delta first terrace bulk samples. Bulk samples include the >2mm fraction. Sample depth is given in meter below surface [m b.s.].

	Depth	OC	TN	Atomic OC:TN
	[m b.s.]	[wt%]		
Lena Delta first terrace bulk				
Gorgolevsky Island (L09-08)				
	0.02	5.39	0.18	35.1
	1.70	8.95	0.28	37.0
	3.40	7.91	0.28	33.6
Samoylov Island (L09-12)				
	0.45	9.24	0.45	23.7
	1.35	15.49	0.32	56.3
	2.50	17.14	0.39	51.5
	4.70	13.58	0.23	68.0
	5.80	11.69	0.24	56.5
Bykovsky Channel (L09-28)				
	0.30	6.14	0.19	33.1
	1.70	2.69	0.12	21.7
Baron Belkey Island (L10-04)				
	0.05	1.82	0.06	34.6
	0.28	1.13	0.03	38.1
	0.93	1.68	0.08	24.6
	1.25	5.48	0.26	24.5
	1.43	1.02	0.04	29.4
	2.15	4.59	0.16	32.8
	3.58	10.45	0.25	49.1
	4.70	7.61	0.24	37.7
	6.00	10.05	0.26	44.8

Table S4. Sediment-normalized CuO oxidation products and parameters of individual bulk soil samples from the first delta terrace and total suspended matter samples from 2009 and 2010. Bulk samples include >2mm fraction and sample depth is given in meters below surface [m b.s.]. When sample material was not sufficient for analysis, not determined is denoted by n.d. Not applicable denoted by n.a.

	Depth	V	S	C	Σ8	P	Pn
	[m b.s.]	[mg/g dws]					
Lena Delta first terrace soils bulk							
Gorgolevsky Island (L09-08)							
	0.02	0.47	0.49	0.32	1.28	0.69	0.13
	1.70	0.85	0.72	0.38	1.95	1.14	0.20
	3.40	0.89	0.55	0.14	1.58	0.82	0.06
Samoylov Island (L09-12)							
	0.45	0.94	0.74	0.30	1.98	1.01	0.22
	1.35	2.41	2.82	1.87	7.10	3.68	0.42
	2.50	1.55	2.46	1.80	5.81	2.14	0.42
	4.70	0.73	0.42	0.20	1.35	0.45	0.04
	5.80	0.78	0.71	0.71	2.04	0.65	0.13
Bykovsky Channel (L09-28)							
	0.30	0.88	0.77	0.34	1.99	0.87	0.10
	1.70	0.47	0.33	0.16	0.96	0.21	0.03
Baron Belkey Island (L10-04)							
	0.05	0.64	0.66	0.31	1.61	0.16	0.02
	0.28	0.04	0.04	0.02	0.1	0.05	0.00
	0.93	0.05	0.05	0.03	0.13	0.06	0.01
	1.25	0.31	0.37	0.24	0.92	0.37	0.04
	1.43	0.07	0.09	0.04	0.20	0.09	0.01
	2.15	0.69	0.47	0.21	1.37	0.47	0.04
	3.58	0.79	0.76	0.44	1.99	0.86	0.18
	4.70	0.68	0.75	0.42	1.85	0.72	0.10
	6.00	1.08	0.92	0.48	2.48	1.53	0.23
Lena Delta TSM Aug 2009							
sample code							
4	n.a.	0.18	0.06	0.03	0.27	0.15	0.05
10	n.a.	0.19	0.07	0.03	0.29	0.17	0.06

11	n.a.	0.15	0.04	0.02	0.21	0.11	0.05
13	n.a.	0.14	0.07	0.03	0.24	0.09	0.05
14	n.a.	0.10	0.05	0.02	0.17	0.07	0.04
16	n.a.	0.17	0.07	0.03	0.27	0.21	0.05
17	n.a.	0.22	0.17	0.08	0.47	0.20	0.07
Lena Delta TSM July/Aug 2010							
25	n.a.	0.20	0.08	0.04	0.32	0.13	0.05
26	n.a.	0.20	0.08	0.03	0.31	0.17	0.06
27	n.a.	0.18	0.08	0.04	0.29	0.11	0.05
28	n.a.	0.17	0.06	0.03	0.26	0.13	0.05
29	n.a.	0.21	0.07	0.03	0.31	0.17	0.05
30	n.a.	0.34	0.14	0.05	0.53	0.30	0.06
31	n.a.	0.28	0.13	0.06	0.46	0.18	0.05
32	n.a.	0.08	0.03	0.01	0.12	0.07	0.02

Table S5. CuO oxidation products and parameters of individual bulk soil samples from the first delta terrace and total suspended matter from 2009-2011. Bulk samples include >2mm fraction and sample depth is given in meters below surface [m b.s.]. When sample material was not sufficient for analysis, not determined is denoted by n.d. Not applicable is denoted by n.a. Abbreviations like in table 4 and 5 of the manuscript.

Depth	V	S	C	Λ8	P	Pn	Ad/Al_V	Ad/Al_S	C/V	S/V	P/V	Pn/P
[m b.s.]	[mg/100 mg OC]											
Lena Delta first terrace soils bulk												
Gorgolevsky Island (L09-08)												
0.02	0.87	0.91	0.59	2.37	1.28	0.23	0.63	0.44	0.68	1.05	1.48	0.18
1.70	0.95	0.80	0.43	2.18	1.28	0.22	0.68	0.63	0.45	0.85	1.34	0.18
3.40	1.13	0.70	0.18	2.01	1.04	0.07	0.74	0.62	0.16	0.62	0.92	0.07
Samoylov Island (L09-12)												
0.45	1.02	0.80	0.33	2.15	1.09	0.24	0.99	0.82	0.32	0.78	1.07	0.22
1.35	1.55	1.82	1.21	4.58	2.38	0.27	0.56	0.58	0.78	1.17	1.53	0.11
2.50	0.91	1.44	1.05	3.40	1.25	0.25	0.63	0.48	1.16	1.58	1.38	0.20
4.70	0.54	0.31	0.14	0.99	0.33	0.03	0.84	0.64	0.27	0.58	0.62	0.09
5.80	0.67	0.61	0.47	1.75	0.56	0.11	0.62	0.60	0.71	0.91	0.84	0.20
Bykovsky Channnel (L09-28)												
0.30	1.44	1.25	0.55	3.24	1.41	0.16	0.79	0.69	0.38	0.87	0.98	0.11
1.70	1.74	1.23	0.60	3.57	0.76	0.11	0.64	0.60	0.35	0.71	0.44	0.15
Baron Belsky Island (L10-04)												
0.05	3.50	3.62	1.69	8.81	0.85	0.13	0.41	0.37	0.48	1.04	0.24	0.15
0.28	0.34	0.31	0.14	0.79	0.41	0.04	0.85	0.67	0.41	0.92	1.19	0.09
0.93	0.30	0.31	0.17	0.78	0.35	0.05	0.78	0.62	0.57	1.06	1.17	0.14
1.25	0.57	0.68	0.45	1.70	0.67	0.08	0.77	0.60	0.79	1.21	1.19	0.11
1.43	0.73	0.88	0.43	2.05	0.91	0.10	0.77	0.61	0.59	1.21	1.25	0.11
2.15	1.51	1.02	0.47	3.00	1.02	0.08	1.03	0.83	0.31	0.68	0.67	0.08
3.58	0.76	0.73	0.42	1.91	0.82	0.17	0.85	0.76	0.56	0.96	1.08	0.21
4.70	0.89	0.98	0.56	2.43	0.95	0.13	0.59	0.51	0.62	1.10	1.06	0.14
6.00	1.07	0.92	0.48	2.47	1.52	0.23	1.19	1.01	0.45	0.86	1.41	0.15
Lena Delta TSM Aug 2009												
sample code												
4	0.76	0.26	0.11	1.13	0.61	0.05	2.25	1.51	0.15	0.34	0.81	0.08
10	0.80	0.30	0.12	1.22	0.71	0.05	1.91	1.21	0.15	0.37	0.89	0.08
11	0.68	0.17	0.09	0.94	0.52	0.05	3.97	1.44	0.14	0.25	0.76	0.09

13	0.59	0.27	0.13	0.99	0.38	0.05	0.91	0.56	0.22	0.47	0.65	0.12
14	0.43	0.20	0.09	0.72	0.29	0.04	0.68	0.52	0.22	0.45	0.66	0.13
16	0.55	0.23	0.10	0.88	0.69	0.05	1.36	0.98	0.19	0.41	1.25	0.07
17	0.62	0.48	0.24	1.34	0.58	0.07	0.88	0.72	0.39	0.77	0.93	0.11
Lena Delta TSM July/Aug 2010												
25	0.77	0.30	0.14	1.21	0.49	0.05	0.98	0.69	0.19	0.39	0.64	0.11
26	0.77	0.30	0.13	1.20	0.67	0.06	1.76	0.99	0.17	0.39	0.87	0.08
27	0.72	0.30	0.14	1.17	0.45	0.05	0.96	0.80	0.20	0.42	0.62	0.11
28	0.65	0.24	0.11	1.00	0.52	0.05	1.28	0.93	0.17	0.37	0.80	0.09
29	0.69	0.22	0.10	1.02	0.57	0.05	1.59	0.93	0.15	0.32	0.83	0.08
30	0.93	0.37	0.15	1.44	0.81	0.06	1.62	1.11	0.16	0.40	0.88	0.07
31	0.76	0.35	0.16	1.26	0.51	0.05	0.69	0.55	0.20	0.45	0.67	0.10
32	0.28	0.09	0.05	0.42	0.25	0.02	2.02	0.48	0.18	0.34	0.89	0.09

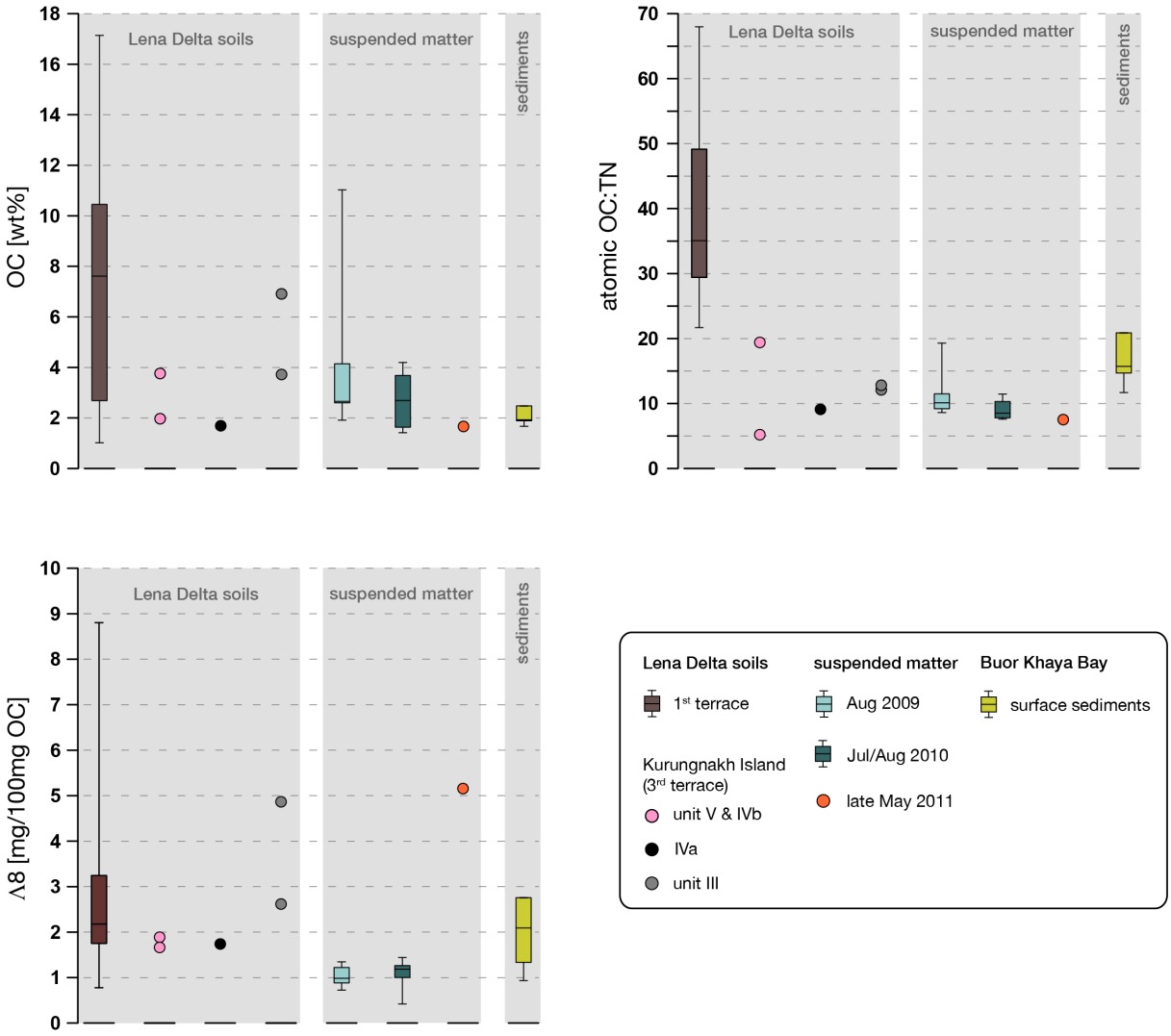

Figure S1. Bulk elemental parameters of Lena Delta soils, suspended matter from surface waters, and surface sediments from the Buor Khaya Bay. The OC content and OC:TN ratios of Kurungnakh Island samples are from (Wetterich et al., 2008).

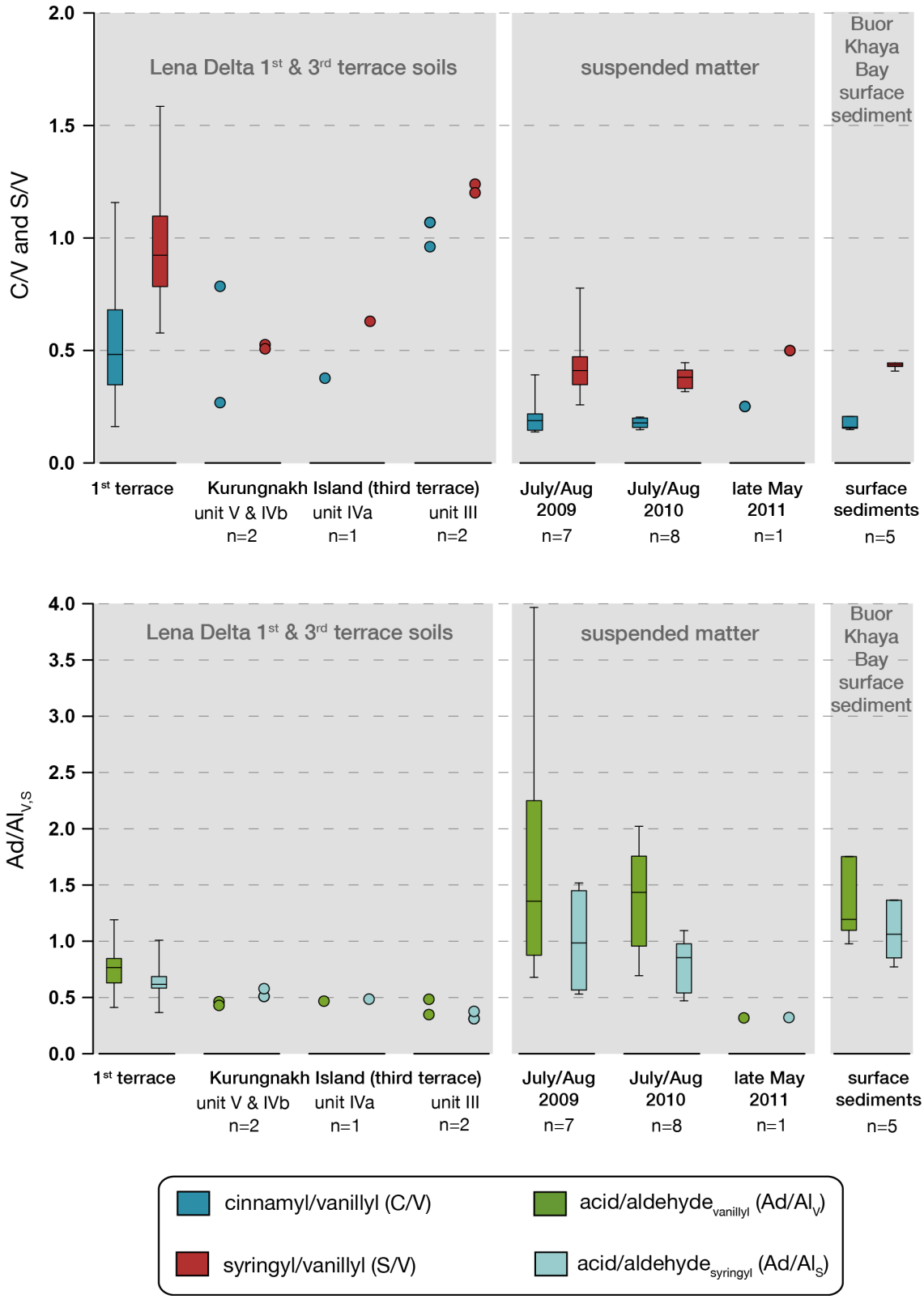

Figure S2. Parameters for different vegetation contributions (C/V and S/V) and degradation indicators ($Ad/Al_{V,S}$) for Lena Delta soils, suspended matter from surface water, and Buor Khaya Bay surface sediments.